

Assessment of Suicidal Ideation in Inner-City Children and Young Adolescents: Reliability and Validity of the Suicidal Ideation Questionnaire-JR

William M. Reynolds
University of British Columbia

James J. Mazza
University of Washington

Abstract: This study examined the reliability and validity of the Suicidal Ideation Questionnaire-Junior (SIQ-JR; Reynolds, 1987) as an instrument for identifying and assessing current suicidal ideation in a sample of 91 children and adolescents, aged 11 to 15 years who attended an inner-city parochial school. Participants completed the SIQ-JR as part of a screening procedure to identify youngsters who are at-risk for suicidal behavior. Psychometric results showed that the internal consistency reliability coefficient of the SIQ-JR was high, $r_{\alpha} = .91$, and the test-retest reliability coefficient was .89. Multiple regression results examining criterion-related validity showed that only the suicidal ideation factor of a clinical interview designed to assess suicidality was significantly related to SIQ-JR scores, $\beta = .67$, $p < .001$. The results of this study support the use of the SIQ-JR as a reliable and valid measure for the evaluation of suicidal ideation in children and young adolescents. The results and their implications for school psychologists are discussed.

Suicidal behavior represents one of the most significant problems among youth today. Suicide and suicidal behavior in adolescents are major concerns of the educational and general community. Suicide is a leading cause of death in adolescents aged 15 to 19 years (Blumenthal, 1990; National Institute of Mental Health, 1992), with a dramatic increase in the rate of suicide found in children and younger adolescents ages 10 to 14 years. Recent reports suggest that the suicide rate has increased 120% from 1980 to 1992 for this age group. African American males were found to be four times more likely to commit

suicide in 1992 than in 1980 (Centers for Disease Control, 1995). The suicide rate continues to climb for teenagers in the 15- to 19-year age range, with the most rapid increase noted in African American males (Shaffer, Gould, & Hicks, 1994).

Garfinkel (1989) suggests that a first step for junior and senior high school-based prevention programs should be the screening and early identification of at-risk youth. This is consistent with the recommendation of others (e.g., Mazza, 1997; Reynolds, 1986, 1991a; Shaffer et al., 1990) who suggest that school-based prevention

The authors wish to acknowledge the assistance of Jennifer Grover as well as interviewers Carmela Gencorrelli, Jeaninne DeVito and Alan Becker for their time and efforts. We also wish to thank Sister Mary Jane, the principal and the staff of St. John The Baptist School for their help and cooperation in assisting in the data collection. This study was conducted while the second author was on the faculty of the Department of Psychology, St. John's University, Jamaica, NY, and was supported in part by a faculty summer development grant to the second author from St. John's University.

Address all correspondence concerning this article to William M. Reynolds, PhD, Department of Educational Psychology and Special Education, 2125 Main Mall, University of British Columbia, Vancouver, BC, Canada V6T 14Z. E-mail: william.reynolds@ubc.ca.

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and intervention programs are best when directed at those youngsters who are at risk. The need for school-based professionals to gain knowledge and training in procedures for the assessment of suicide risk in youngsters is a major recommendation of the U.S. Department of Health and Human Services (1989) in the *Report of the Secretary's Task Force on Youth Suicide*. This report noted that schools are among the best settings and opportunities for the identification of youngsters at risk for suicidal behaviors.

Suicidal ideation has been viewed as an initial stage on a continuum of suicidality and a primary marker for future suicidal behavior (Brent, 1989; Pfeffer et al., 1991; Pfeffer, Newcorn, Kaplan, Mizruchi, & Plutnick, 1988; Reynolds, 1988; Smith & Crawford, 1986). Based upon this and the perspective that suicidal ideation in youngsters may be considered maladaptive and a target for intervention, the formal assessment of suicidal ideation using measures such as the Suicidal Ideation Questionnaire (SIQ; Reynolds, 1988) has been proposed as a formal component of school-based suicide prevention programs for the early identification of at-risk youngsters (Eggert, Thompson, Randell, & McCauley, 1995; Reynolds, 1988, 1991a). The early identification of suicidality in young persons provides school psychologists and other professionals with a critical opportunity for referral and intervention before more serious suicidal behavior or other problems may occur. Thus, suicidal ideation may serve as a critical target in the systematic screening and identification of youngsters who are at risk for suicidal behavior.

Instruments specific to the assessment of suicidal ideation have been developed based upon the observation that most youngsters, when asked specific questions regarding their thoughts about suicide and death, will self-disclose in an open and honest manner (Reynolds, 1988). Although these instruments are considered useful, the determination that a measure is reliable and valid for various potentially at-risk populations is an important undertaking, especially when assessing thoughts of self-destructive and suicidal behavior that may have lethal consequences.

The Suicidal Ideation Questionnaire

Of the measures developed for the evaluation of suicidal ideation in adolescents, the SIQ has generated a significant amount of research with clinical and school-based samples. The SIQ has

been used in numerous clinical and school-based studies of suicidal behavior in adolescents as a measure of suicidal ideation (e.g., Adams, Overholser, & Spirito, 1994; Baker, 1995; Brown, Overholser, Spirito, & Fritz, 1991; Colle, Belair, DiFeo, Weiss, & LaRoche 1994; Hewitt, Newton, Flett, & Callander, 1997; King et al., 1995; King et al., 1996; King, Hovey, Brand, Wilson, & Ghaziuddin, 1997; Lamb & Pusker, 1991; Levy, Jurkovic, & Spirito, 1995; Mazza & Reynolds, 1998; Morano, Cisler, & Lemerond, 1993; Pinto & Whisman, 1996; Reynolds, 1989; Shaunesey, Cohen, Plummer, & Berman, 1993; Spirito, Stark, Fristad, Hart, & Owens-Stively, 1987). There are two forms of the SIQ that are designed for use with adolescents: the 30-item form and a 15-item form (referred to as the SIQ-JR); the latter is designed for younger adolescents. Extensive evidence for reliability and validity for the 30-item SIQ has been reported in school-based (Reynolds, 1988) and clinical (Pinto, Whisman, & McCoy, 1997) samples of adolescents. Construct validity was established through convergent validity, with SIQ scores moderately to strongly correlated (.52 to .70) with related constructs such as depression, hopelessness, learned helplessness, and self-esteem (Reynolds, 1988, 1989). Criterion-related validity has been demonstrated by its relationship to a structured clinical interview of suicidal behaviors (Reynolds, 1990, 1991a). Pinto et al., (1997) provided evidence for the concurrent validity of the SIQ with psychiatrically hospitalized adolescents.

Data on the reliability and validity of the SIQ-JR has been reported in clinical and school-based samples. Internal consistency reliability for the SIQ-JR has been reported to be high with alpha coefficients ranging from .93 to .96 (Keane, Dick, Bechtold, & Manson, 1996; Reynolds, 1988, 1992a). However, information on test-retest reliability for the SIQ-JR remains to be investigated. There have been numerous reports of SIQ validity, particularly contrasted group and criterion-related validity with clinical samples. For example, in a sample of adolescent female suicide attempters and a matched sample of non-attempters, King, Raskin, Gdowski, Butkus, and Opipari (1990) found significant differences in SIQ-JR scores between attempters ($M = 57.8$) and nonattempters ($M = 17.0$). King, Hill, Naylor, Evans, & Shain, (1993) found a significant relationship between the SIQ-JR and depression ($r = .53, p < .001$), and lifetime severity of suicidal

behavior ($r = .55, p < .001$) in a sample of 54 adolescent inpatients. King, Katz, et al., (1997) reported that in a sample of 265 adolescent inpatients who were interviewed with a diagnostic interview, youngsters who met criteria for thoughts of death and suicidality as a symptom of major depressive episode were significantly more likely to score above the SIQ-JR raw score cutoff of 31 ($\chi^2 = 56.81, p < .001$) than other adolescents. Reynolds (1990) reported a correlation of .62 between the SIQ-JR and the Suicidal Behaviors Interview (Reynolds, 1998a) with a sample of 185 adolescents, the majority of whom were in the eighth grade. In a noteworthy study of suicidal ideation among American Indian adolescents in a school-based setting, Keane et al., (1996) found SIQ-JR mean scores of 10.6, 24.9, and 47.7 for groups of youngsters who reported never attempting suicide, had made a previous suicide attempt, and had made a suicide attempt two months after the assessment with the SIQ-JR, respectively.

To date, most of the research investigations with the SIQ-JR have been with clinical samples with few investigations of this measure with younger, school-based samples of adolescents. Given that this population has been identified as experiencing a rapid increase in suicidal behaviors (Centers for Disease Control, 1995), research on the reliability and validity of measures such as the SIQ-JR for the assessment of youngsters' thinking of suicide and suicidal behaviors is an important undertaking.

The Current Investigation

The current investigation was conducted to examine the reliability and validity of the Suicidal Ideation Questionnaire-Junior (SIQ-JR; Reynolds, 1987) in a sample of middle school children and young adolescents attending an inner-city school. Specifically, the focus of this study was the examination of internal consistency reliability (Coefficient alpha), test-retest reliability, criterion-related validity, and contrasted group validity of the SIQ-JR. Because information on test-retest reliability had not been previously investigated with the SIQ-JR and younger age adolescents, this information was considered important for determining the stability of the SIQ-JR with this age group.

To examine the validity of measures used in clinical applications a standard procedure is to determine how well the measure differentiates

between groups that are expected to vary on the characteristic being measured (Wiggins, 1973). The contrasted groups validity of a measure of suicidal ideation may be evaluated by the examination of differences in scores between individuals who have attempted suicide and those who have not. A history of a suicide attempt has been viewed as a major risk factor for subsequent suicidal behaviors in adolescents (Berman & Jobes, 1991; Brent, et al., 1988; Brent & Kolko, 1990; Hawton, 1986; Keane, et al., 1996), with a trend for increased suicidal risk in the months following an attempt. Thus, it was expected that youngsters who indicate a history of a suicide attempt would demonstrate higher levels of suicidal ideation than adolescents who have never attempted suicide. Likewise, in youngsters who have attempted suicide, it was hypothesized that individuals who had attempted in the past 12 months would manifest higher scores on the SIQ-JR than youngsters whose suicide attempts were made more than 12 months ago.

For the evaluation of criterion-related validity of a self-report paper-and-pencil measure, clinical interviews are often viewed as the gold standard against which the validity of the paper-and-pencil measure may be tested (Reynolds, 1992b, 1994; Reynolds & Kobak, 1995), particularly for internalizing problems and disorders that represent covert or non-observable aspects of the individual's affect or cognitions. Because the SIQ-JR is designed to assess the severity of suicidal ideation in adolescents, it is useful that the criterion measure be congruent with this assessment focus. In addition, the criterion measure should be one that is applicable to adolescents and, for all practical purposes, should represent a "high quality" assessment measure of suicidal ideation and behavior. In the study of suicidal behavior, the assessment technique that best allows for the examination of criterion-related validity of self-report measures is the clinical interview.

For the assessment of internalizing disorders and symptomatology, the clinical interview allows clinical evaluation and probing of symptoms, the assessment of symptom severity, and the determination of the specifics of youngsters' behaviors and cognitions including duration and intensity. The interview allows an interviewer to probe for greater information and present questions in a manner that the youngster can fully comprehend. Thus, it is evident that the clinical interview provides the potential for a

more sensitive assessment of internalizing disorders and problems, including suicidal ideation and behaviors.

Although clinical interviews represent a set of procedures that have greater fidelity than paper-and-pencil measures for the assessment of suicidality, they do have a number of limitations. One is the requirement of time. Interviews are individual assessments that require between 20 and 30 minutes, depending upon the severity of current and past suicidal behaviors and cognitions. Clinical interviews require trained examiners who are capable of providing reliable and valid assessments. It should be noted that reports by significant others such as parents are generally very inaccurate, with most parents unaware of the suicidal behaviors of their youngsters (Joffe, Offord, & Boyle, 1988; Kashani, Goddard, & Reid, 1989; Rey & Bird, 1991; Velez & Cohen, 1988; Walker, Moreau, & Weissman, 1990; Zimmerman & Asnis, 1991a, 1991b).

The criterion-related validity of the SIQ-JR was examined by the relationship between the SIQ-JR and components of the Suicidal Behavior Interview (SBI; Reynolds, 1998a). As will be described in more detail, the SBI is a semi-structured clinical interview that assesses current and past suicidal behavior. For the determination of criterion-related validity, it was expected that the SIQ-JR would demonstrate moderate to strong correlations with SBI components of suicidal ideation and suicide attempt behaviors as well as suicide attempt history. Furthermore, when examined from a multivariate perspective, the strongest relationship would be between the SIQ-JR and the SBI suicidal ideation factor.

Method

Participants

The participants were 91 children and young adolescents enrolled in the 6th, 7th and 8th grades in a parochial school in an inner-city neighborhood in Brooklyn, New York. There were 38 males and 53 females with a mean age of 12.5 years ($SD = 0.92$) and a range from 11 to 15 years, with 87% of the sample between 11 and 13 years of age. The sample was primarily (91.2%) African American and Hispanic in ethnicity. The sample consisted of the following ethnic composition: 71.4% African American, 19.8% Hispanic, 1.1% Caucasian, 1.1% American Indian, and 6.6% Other or not specified. By grade level, there were

33 6th graders, 35 7th graders, and 23 8th graders. Based on initial screening data and interviews with the Suicidal Behavior History Form (Reynolds & Mazza, 1992), there were 17 youngsters (18.7%) who reported a history of one or more suicide attempts.

Instrumentation

The Suicidal Ideation Questionnaire-JR (SIQ-JR; Reynolds, 1987) is a self-report measure developed specifically for young adolescents that requires approximately five to eight minutes to complete. It can be group or individually administered. The SIQ-JR is composed of 15 items that are scored on a seven-point scale ranging from 0 (I never had this thought) to 6 (almost every day). Each item addresses a specific suicidal cognition (e.g., "I thought about how others would feel if I killed myself." "I thought about how I would kill myself." "I thought that killing myself would solve my problems."), and evaluates the frequency of the cognitions during the past month. The SIQ-JR is scored in a pathological direction, with higher scores indicating greater severity of suicidal ideation. There are three versions of the SIQ: the Adult Suicidal Ideation Questionnaire (ASIQ; Reynolds, 1991b) for adults, the SIQ for adolescents in grades 10 through 12, and the SIQ-JR for young adolescents in grades 7 through 9. Although designed for use with younger adolescents, the SIQ-JR also has been used in assessing suicidal ideation among clinical and school-based samples of adolescents of varying ages (e.g., Keane et al., 1996; King et al., 1993; King et al., 1992; King et al., 1994). A raw score cutoff of 31 (89th percentile of the normative sample) for the SIQ-JR was derived in the development of the scale to indicate a significant level of suicidal ideation (Reynolds, 1988), and has been used by other researchers (e.g., Keane et al., 1996; King, Katz et al., 1997) as a meaningful clinical level of suicidal ideation. The derivation of the SIQ-JR cutoff score is described in the SIQ Manual (Reynolds, 1988). The cutoff score of 31 was identified based on the SIQ-JR score distribution in a sample of more than 2,000 youngsters and the examination of SIQ-JR score covariation with other measures of psychological distress as well as analysis of individual clinical protocols. It is important to recognize that the SIQ-JR and the cutoff score are not designed to be predictive of suicidal behaviors such as

attempts, but as indicators of youngsters' current levels of suicidal ideation.

The SIQ-JR was standardized using scores from 1,290 young adolescents. The internal consistency reliability coefficient for the SIQ-JR for the standardization sample was .94 using Cronbach's coefficient alpha (r_α ; Cronbach, 1951). Construct validity was established through convergent validity, comparing the SIQ-JR with related affective constructs such as anxiety and depression, with correlations ranging from .56 to .66 (Reynolds, 1988).

The Suicidal Behavior Interview (SBI; Reynolds, 1990, 1998a) is a semistructured clinical interview designed specifically for adolescents that assesses present and past suicidal behaviors. There are 20 items on the SBI, 18 of which are scored. Each item is scored on a severity continuum, using either a 0- to 2- or 0- to 4-point scale, with a higher score indicating greater suicidality. Items on the SBI are scored to the half point (.5) to increase the specificity of each individual item score. The SBI is composed of two parts; the first consists of four items that evaluate global aspects of psychological distress and psychosocial stressors, including depression, hopelessness, social support, daily hassles, and negative life events. The second part of the SBI consists of 14 scored items that evaluate suicidal ideation, suicidal intent, overt suicide-related behaviors and past suicide attempts, and present level of suicidality. Of relevance to the current investigation was two SBI components: one evaluating suicidal ideation (6 questions) and the other examining suicide attempt behaviors (3 clinical interview questions).

The SBI was developed with a sample 352 school-based adolescents, aged 12 to 19. In the development study, Reynolds (1990) reported an internal consistency reliability coefficient for the 18 scored items of .92, with high levels of interrater reliability ($r_{tr} = .92$; $r_{icc} = .99$). An exploratory factor analysis of the 18 scored items produced three factors that were labeled general psychological distress, covert and overt suicidal behaviors, and history/lethality of a past suicide attempt(s) (Reynolds, 1990). Reynolds and Mazza (1993), using a sample 486 adolescents, reported an internal consistency reliability of .90 for the SBI with an interrater reliability of .95 for a subsample of 47 at-risk youngsters. High levels of reliability for the SBI also have been reported by other investigators (e.g., Sadowski, Lloyd, & Kelley, 1995). Convergent validity of the SBI was

examined by Champion, Carey, and Hodges (1994), who reported correlations of .53 and .59 (all $ps < .001$) between the SBI and measures of hopelessness and depression with 61 adolescents in an inpatient psychiatric unit of a university medical center.

As previously noted, for the purpose of this study, only the two components of the SBI that evaluate suicidal behavior ideation and suicide attempt behaviors were used. The suicidal ideation factor includes items evaluating wishes one were dead, recency of thoughts of attempting suicide, thoughts of method of suicide, intention to attempt suicide, and thoughts of when and where one would attempt suicide. The possible range of scores on this factor is 0 to 20. The SBI suicide attempt factor included the evaluation of recency of the last suicide attempt, the intentionality of the attempt, and an evaluation of the lethality risk and rescue probability associated with the attempt. The potential range of scores on this factor is 0 to 12. In the current investigation, the SBI suicidal ideation factor had an internal consistency reliability (standardized alpha) of $r_\alpha = .93$. The three-item SBI past suicide attempt factor had an internal consistency reliability (standardized alpha) of $r_\alpha = .84$. These two factors of the SBI were used as independent variables for the multiple regression analysis examining criterion-related validity.

The Suicidal Behavior History Form (SBHF; Reynolds & Mazza, 1992) is a semistructured, non-scored interview for the evaluation of suicide attempt and behavior history in adolescents and adults. The SBHF allows the systematic gathering of information specific to suicide attempts, including characteristics of the attempt, time since attempt, number of previous attempts, and other relevant information.

Procedures

Prior to data collection, active parental consent was obtained and only those students with written consent participated in the study. Of the 150 students in the 6th, 7th and 8th grades of the school, 115 (77%) returned the consent forms. Of those 115, 102 youngsters (89%) received parental permission to participate. At the initial testing, all participants completed a self-report mental health battery that included measures of suicidal ideation (SIQ-JR), depression, and other measures that were part of another study unrelated to the study of the SIQ-JR. The participants

completed the self-report battery at the same time during a designated day. Completion of the self-report battery took approximately 30 to 40 minutes. Each youngster was then individually interviewed with the SBI and SBHF and also retested with the SIQ-JR one to five weeks later. The mean time between the completion of the screening battery and the SBI was 22.64 days ($SD = 8.55$), with the majority of participants being interviewed between two and four weeks after the initial assessment. Children and adolescents who scored above the clinical cutoff score of 31 (89th percentile) on the first SIQ-JR administration were interviewed first for ethical reasons. However, as described below, the time interval between assessments was unrelated to the mean difference in SIQ-JR scores between the two testings.

The SBI and SBHF interviews were conducted on a one-to-one basis in small classrooms in the school. Five trained graduate students in school psychology and clinical psychology programs at St. John's University, New York conducted the interviews. The second author of this report, using the training protocol and procedures developed by the first author, trained the interviewers. The five interviewers were blind to the results of the initial self-report battery including the SIQ-JR scores. Of the 102 participants interviewed, 11 participants were omitted from the study due to absence during the second assessment or because of incomplete or invalid data, resulting in 91 useable cases for statistical analyses at the second assessment. It should be noted that there were four youngsters who were absent or otherwise unavailable during the first assessment but were subsequently tested during the second assessment. Thus, test-retest reliability was based on 87 participants. There was one youngster who did not provide a valid SBI interview and who was included in the SIQ-JR test-retest reliability analyses but omitted from analyses that included the SBI, resulting in 90 youngsters who completed the SBI.

In addition to the SBI, participants were asked to complete a second mini-battery of self-report measures, including the SIQ-JR, immediately prior to being interviewed. The second administration allowed the determination of test-retest reliability and criterion-related concurrent validity of the SIQ-JR. The SIQ-JR was administered first on the second assessment rather than in a counterbalanced order to establish test-retest reliability of the SIQ-JR. Interviewers were blind

to the results of the second SIQ-JR administration. Children and adolescents who were considered at-risk based on the results of the SIQ-JR (either administration) and SBI were brought to the attention of school personnel who had been instructed by the second author in procedures for parent contact and referral to mental health professionals.

Data Analysis

Data were analyzed using the Statistical Package of the Social Sciences for Windows™, Release 6.0 (SPSS, 1994). Descriptive statistics were computed to examine the distribution of scores on the SIQ-JR as well as to test for gender differences. The determination of reliability was important because adequate reliability is a prerequisite for determining the validity of the SIQ-JR. Reliability of the SIQ-JR was examined from the perspective of internal consistency, computed using Coefficient alpha (Cronbach, 1951) and test-retest reliability as demonstrated by the correlation between SIQ-JR scores on two occasions. In addition to the test-retest reliability coefficients, *t*-tests for correlated means were computed to examine the raw score stability of the SIQ-JR between testings. Reliability estimates were computed for the total sample and for males and females.

The contrasted groups validity was examined by *t*-tests computed between SIQ-JR mean scores of children and adolescents with a history of suicide attempts and those who have not attempted suicide. A similar procedure was used to test the difference in SIQ-JR scores between youngsters with recent (the past 12 months) and later (more than 12 months previous) suicide attempt histories.

Criterion-related validity was examined in the form of concurrent validity through a simultaneous multiple regression analysis with the beta coefficients providing a test of the relationship between the SIQ-JR and criterion variables. The regression analysis was conducted with three independent variables: the two factors on the SBI and suicide attempt history (dummy coded). The SIQ-JR scores during the second administration was the dependent variable given that the second SIQ-JR and the SBI were completed on the same day and the focus of these analyses were on the concurrent rather than predictive criterion-related validity of the SIQ-JR. The Type I error rate for the examination of

the beta coefficients was adjusted accordingly for the three independent variables, resulting in an alpha level of .0167 for each predictor

Results

Descriptive Characteristics

The mean score on the SIQ-JR for the sample during the first administration was 11.52 ($SD = 13.09$), which is similar to the mean score reported by Reynolds (1988) for the junior high school standardization sample ($M = 12.33$, $SD = 16.28$). The difference in SIQ-JR scores between males ($M = 10.83$) and females ($M = 12.00$) was not significant, $t(85) = .41$, $p = ns$. There were five (4 females and 1 male) youngsters (5.7%) who had scores on the SIQ-JR above the recommended cutoff score of 31 (89th percentile). On the second administration the SIQ mean score was 11.80 ($SD = 14.57$). The difference in SIQ-JR score between males ($M = 12.66$) and females ($M = 11.19$) was not significant, $t(89) = .47$, $p = ns$. There were eight (4 females and 4 males) youngsters (8.8%) who had scores above the SIQ-JR cutoff score on the second administration. There were no ethnic

differences in SIQ-JR scores. A t -test between SIQ-JR scores of African American ($M = 11.43$) and Hispanic ($M = 13.28$) children and adolescents was nonsignificant, $t(81) = .64$, $p = ns$. In the total sample of 91 youngsters, there were 17 (18.7%) children and adolescents (9 females and 8 males) who, based upon self-reported demographic information and the SBHF interview, reported a history of attempted suicide. An examination of the time since the attempt indicated that seven (41.2%) youngsters had made a suicide attempt within the past 12 months.

Reliability

The internal consistency reliability of the SIQ-JR on the initial assessment was $r_\alpha = .91$ with similar reliability coefficients found for females and for males, $r_\alpha = .90$. The SIQ-JR internal consistency reliability on the second assessment was $r_\alpha = .94$, for the total sample with similarly high reliability coefficients found for females ($r_\alpha = .93$) and for males ($r_\alpha = .92$). Table 1 provides the results of the test-retest reliability analyses of the SIQ-JR for the total sample and by gender. As shown in Table 1, the mean score change on the SIQ-JR was minimal with a mean raw score

Table 1

Test Retest Reliability (r_{tt}) of the SIQ-JR for Males, Females and the Total Sample

Sample	Occasion	<i>M</i>	<i>SD</i>	<i>M</i> difference ^a	r_{tt}	t^b	<i>p</i>
Total (<i>N</i> = 87)	Time 1	11.52	13.09	.40	.89	.57	ns
	Time 2	11.11	14.20				
Females (<i>n</i> = 51)	Time 1	12.00	13.31	.88	.87	.84	ns
	Time 2	11.12	15.17				
Males (<i>n</i> = 36)	Time 1	10.83	12.92	-.28	.93	-.34	ns
	Time 2	11.11	13.91				

^aMean SIQ-JR score difference between occasions.

^b t -test between SIQ-JR means for Time 1 and Time 2.

difference of .40 found between the screening and follow-up assessment. A difference score, computed between SIQ-JR scores at initial and retest administrations, was not significantly related to the amount of time between testings, $r(85) = -.19, p = \text{ns}$. The test-retest reliability coefficient of .89 is high and indicative of a strong rank-order stability of SIQ-JR scores. The test-retest reliability was slightly higher for males ($r_{tt} = .93$) than for females ($r_{tt} = .87$) with small changes in SIQ-JR raw scores between assessments for both groups (male $M_{\text{diff}} = .28$; female $M_{\text{diff}} = .88$).

Validity

Validity of the SIQ-JR was examined from the perspectives of contrasted groups and criterion-related validity. The second assessment SIQ-JR scores were used to obtain information on the concurrent validity with the SBI that was administered during the same session. The second administration also included the larger sample size and was used for the examination of contrasted groups validity. Contrasted group validity was investigated by examining the SIQ-JR scores of those youngsters who had attempted suicide compared to those who had not, given that a history of a suicide attempt has been found to be a significant risk factor for subsequent suicidal behavior. Youngsters who had attempted suicide ($n = 17$) reported significantly higher levels of suicidal ideation on the SIQ-JR ($M = 28.76, SD = 22.34$) than nonattempters ($n = 74$) ($M = 7.91, SD = 8.37$), $t(17.04) = 3.79, p < .001$ (adjusted for unequal variances), $t(89) = 6.39, p < .001$ (unadjusted).

It was anticipated that recency of suicide attempt would be related to higher scores on the SIQ-JR. Youngsters who indicated a suicide attempt in the previous 12 months ($n = 7$) reported a significantly higher SIQ-JR score ($M = 43.00, SD = 22.94$) than did youngsters who attempted suicide more than one year previously ($M = 18.80, SD = 16.40$), $t(15) = 2.55, p < .015$. To further examine the relationship between SIQ-JR scores and suicide attempt history, an analysis of variance (ANOVA) was computed between the groups of adolescents who reported no history of suicide attempts, an attempt more than one year prior, and an attempt within the past 12 months. This resulted in a $F(2,88) = 34.68, p < .001$, with Scheffé comparisons indicating significant differences ($p < .05$) between all groups. It also was found that 71.4% of youngsters in the recent

suicide attempt group scored above the SIQ-JR cutoff score compared to 10% of adolescents with a suicide attempt prior to one year ($\chi^2 [1,17] = 6.80, p < .01$).

The criterion-related validity was initially evaluated by the relationship between the SIQ-JR and the SBI clinical interview of suicidal behavior. The zero-order correlation coefficients of the SIQ-JR with the SBI suicidal ideation and suicide attempt factors were significant, $r(88) = .75, p < .001$, and $r(88) = .66, p < .001$, respectively. The correlation coefficients between the SIQ-JR and the SBI suicidal ideation factor were similar for males and females, $r(35) = .74, p < .001$ and $r(51) = .75, p < .001$, respectively, as was the relationship between the SBI suicide attempt factor and SIQ-JR scores for males and females, $r(35) = .71, p < .001$ and $r(51) = .66, p < .001$, respectively.

As a further examination of the criterion-related validity of the SIQ-JR as a measure of suicidal ideation, a multiple regression analysis was conducted with the SBI suicidal ideation factor, SBI suicide attempt evaluation factor, and suicide attempt history as the independent variables and SIQ-JR as the dependent variable. As shown in Table 2, a multiple correlation coefficient of $R(3,86) = .75, p < .001$ was found. Although all three independent variables showed significant zero-order correlations with the SIQ-JR, only the SBI factor specific to suicidal ideation demonstrated a unique contribution in the relationship to SIQ-JR scores when all three independent variables were examined simultaneously. The standardized beta coefficient of $\beta = .67, p < .001$, can be considered indicative of a strong relationship between the SIQ-JR and the SBI clinical interview assessment of suicidal ideation. The relationship between the SIQ-JR and the SBI past suicide attempt factor and history of a past attempt were not significant when all three independent variables were entered simultaneously into the regression equation.

Although not reported in Table 2, separate regression analyses were computed for males and females. For males in the sample, a multiple correlation coefficient of $R(3,33) = .77, p < .001$ was found with the only significant beta coefficient found with the SBI suicidal ideation factor, $\beta = .45, p < .03$. The regression analysis for females resulted in a multiple correlation coefficient of $R(3,49) = .76, p < .001$. The only significant beta coefficient for females was with the SBI suicidal ideation factor, $\beta = .85, p < .001$.

Table 2

Summary of Multiple Regression Analysis with Past History of Suicide Attempt, SBI Factor of Suicidal Ideation, and SBI Factor of Suicide Attempt Behavior as the Independent Variables and SIQ-JR Scores as the Dependent Variable

Independent Variable	r^a	B	SE B	β	t^b	$p <$
Past Suicide Attempt	.56***	2.79	4.07	.075	.66	.495
SBI - Suicidal Ideation Factor	.75***	3.46	.74	.667	4.69	.001
SBI - Suicide Attempt Factor	.66***	.30	1.46	.032	.21	.835
Multiple $R = .75$ $F(3,86) = 36.54$ $p < .0001$ $R^2 = .56$ Adjusted $R^2 = .55$						

^aZero order correlation coefficients.

^b t -tests and associated p values are for the beta coefficients.

*** $p < .001$

Discussion

The evaluation of suicidal ideation has been proposed by a number of investigators and agencies as an important school-based activity for the early identification of youngsters at risk for suicidal behaviors (e.g., Eggert et al., 1995; Garfinkel, 1989; Reynolds, 1988, 1991a). In addition, the assessment of suicidal ideation in children and adolescents who may come to the attention of professionals due to other internalizing or externalizing disorders or problems is an important undertaking. Within the context of such activities, it is critical that the measures used have demonstrated reliability and validity. The focus of this investigation was upon the reliability and validity of the SIQ-JR as a measure of suicidal ideation in children and young adolescents.

In the current study, the SIQ-JR demonstrated high levels of internal consistency and test-retest reliability in an inner-city sample of young adolescents. The internal consistency reliability coefficient of .91 found in this investigation is similar to the reliability coefficients in the standardization sample of the SIQ-JR (Reynolds, 1988), a sample that was predominantly (79%) Caucasian and had minimal representation of Hispanic adolescents. In the current sample, the majority of participants were inner-city dwelling African American and Hispanic children and adolescents.

The test-retest reliability coefficient of .89 found in the current investigation indicates a strong rank order stability of the SIQ-JR scores during a 2- to 4-week period. Because the test-retest reliability coefficient was computed using Pearson's procedure, it reflects the rank-order stability during the repeat assessment. To examine the raw score stability, a t -test for correlated means was computed between the two testings. The results suggest very little mean score change in SIQ-JR scores for the sample between the two assessments with a mean change score of less than .5. One potential limitation to the current investigation was the variability in the SIQ-JR retest interval. However, a low, non-significant correlation was found between the retest interval and the mean difference in SIQ-JR scores between testings. Overall, the results of the reliability analyses suggest that the SIQ-JR demonstrates high levels of reliability with inner-city children and adolescents, and supports the utility of the SIQ-JR for the evaluation of suicidal ideation in young people.

The validity of the SIQ-JR was examined from two perspectives: contrasted groups validity and criterion-related validity. The contrast group validity results indicated that children and adolescents who had attempted suicide showed significantly higher levels of suicidal ideation than did those who had not attempted suicide. Furthermore, a linear trend was found with youngsters who reported a suicide attempt within

the past 12 months demonstrating significantly higher levels of suicidal ideation on the SIQ-JR than youngsters who attempted suicide more than one year prior to the assessment with the SIQ-JR. It is of interest to note that the recent suicide attempt group reported a mean SIQ-JR score of 43, with 83.3% of youngsters in this group scoring above the SIQ-JR cutoff. These results are similar to those reported by other researchers (e.g., Keane et al., 1996; King et al., 1990; King et al., 1995; Morano et al., 1993; Shaunesey et al., 1993) and indicate that youngsters who have made a previous suicide attempt show significantly higher suicidal ideation than non-attempters. Therefore, school professionals should consider youngsters who have attempted suicide as potentially at continued risk for suicidal behavior and ideation.

The criterion-related validity of the SIQ-JR was investigated by examining the relationship between the SIQ-JR and the SBI, a semistructured clinical interview measure of suicidal ideation and behavior, as well as youngsters' history of suicide attempts. The results of the regression analysis support the criterion-related validity of the SIQ-JR as a measure of current suicidal ideation. It was found that suicidal ideation as measured by the SBI clinical interview demonstrated a strong relationship to the SIQ-JR. As shown, a zero-order correlation coefficient of .75 was found between the SIQ-JR and SBI suicidal ideation factor. When suicide attempt behaviors were considered within the multiple regression analysis, these factors did not add significantly to the relationship with the SIQ-JR beyond that accounted for by the SBI suicidal ideation factor, providing evidence for criterion-related validity of the SIQ-JR as a measure of current suicidal ideation. This also emphasizes the distinction between suicide attempts and suicidal ideation. Suicidal ideation is an important clinical aspect and potential target for intervention. Although most youngsters who attempt and complete suicide demonstrate prior suicidal ideation (Reynolds & Mazza, 1994), suicidal ideation as a construct should not be viewed as predictive of suicide attempts. A significant proportion of youngsters who are *thinking* of suicide will not attempt suicide.

In the current study, males and females did not demonstrate a statistically significant difference in SIQ-JR mean scores. Although Reynolds (1988) reported gender differences in the normative sample with girls reporting higher

levels of suicidal ideation, other investigators have not found gender differences (e.g., Keane et al., 1996). In the current investigation, the similarity between scores on the SIQ-JR for males and females may be due, in part, to the younger age of this sample. This is consistent with research on internalizing disorders such as depression that generally reports gender differences among older adolescents with females demonstrating greater depressive symptoms than males, but not for children and younger adolescents (Reynolds, 1992b, 1998b).

There are several characteristics of the sample used in the current investigation that differ from the average youngster drawn from the general population. Our sample was drawn from a parochial school setting, although there is no evidence to suggest that youngsters who attend parochial school settings demonstrate internalizing disorders and problems differently than adolescents in public schools. In the inner-city Brooklyn location of the school in which this study was conducted, parental decisions to enroll their youngsters in parochial rather than public schools are often based upon numerous factors such as perceived safety, education quality, location, and other factors as well as religious orientation. Our sample consisted primarily of African American and Hispanic youngsters with no difference in SIQ scores between these two groups of adolescents. In the standardization sample, Reynolds (1988) did not find a significant difference in SIQ-JR scores between Caucasian and African American adolescents. However, although the setting and sample demographic characteristics differed from the SIQ-JR development sample, the mean SIQ-JR score found in the current sample of 11.80 was very similar to the mean of 12.33 found with the SIQ-JR standardization sample. In their study of the SIQ-JR with 163 American Indians, Keane et al., (1996) also reported a mean score on the SIQ-JR that did not differ significantly from the SIQ-JR standardization sample. These data suggest that the SIQ-JR mean score is relatively robust across different ethnic groups of adolescents and instructional settings.

It is important to recognize that there are several limitations to the generalizability of our study. Foremost, our sample size may be viewed as small, although adequate for the examination of reliability and validity. However, with regard to validity, the small sample size resulted in a relatively low number ($n = 7$) of youngsters who

reported a suicide attempt in the past year. In this regard, the results specific to contrasted groups validity should be viewed as preliminary within the scope of this investigation. Similarly, the selection of students from a parochial school also may be considered a limitation to generalizability.

For the determination of criterion-related validity, the current study used the SBI, a semistructured clinical interview as the criterion measure. Future research should include other criterion measures including psychological measures as well as other sources of information. However, as previously noted, issues regarding the accuracy of parent reports of youth suicidal behavior is problematic (e.g., Walker et al., 1990; Zimmerman & Asnis, 1991a, 1991b), suggesting that care should be taken in the selection of criterion measures. A potential caveat to the analyses with the SBI was that the SIQ-JR was administered prior to the clinical interview rather than in a counterbalanced order. This was done to assess test-retest reliability of the SIQ-JR without the potential for any confounding effects that may occur with a clinician requesting the youngster to remember suicidal ideation on the SBI prior to the administration of the SIQ-JR. However, the potential for an order effect on the SBI cannot be overlooked and future validity studies should consider a counterbalanced administration of the SIQ and criterion measures.

It should be recognized that test validation is an ongoing and dynamic procedure and the validity of a measure is not based on a single study. Evidence for the validity of the SIQ has been reported by a number of investigators (e.g., Keane et al., 1996; King et al., 1990, 1993, 1997; Reynolds, 1988). As with any measure, future research on the validity of the SIQ with other samples and additional criteria is warranted. In addition, cross-validation is recommended for future research given the sample size limitations and characteristics.

As a measure of suicidal ideation, the SIQ-JR may be used for individual evaluation of children and young adolescents as well as in group screening programs for the identification of youngsters manifesting significant levels of suicidal thoughts. The latter application may be viewed as an essential component in the prevention and intervention process designed to reduce the high rates of youngsters who engage in more serious suicidal behaviors (Garfinkel, 1989; Poland, 1989; Reynolds, 1991a; Reynolds & Mazza, 1994). Screening procedures for

suicidal youth are important in school settings because they allow for the broadest coverage in the identification of youngsters who demonstrate suicidal behaviors. These youngsters may then be referred to a trained clinician or professional who, on the basis of further evaluation, can make a determination of the seriousness and potential for self-harm and provide appropriate interventions (Holinger, Offer, Barter, & Bell, 1994). Thus, once youngsters have been identified as at-risk for suicide, it is critical to follow through with a referral for further evaluation, treatment, or both. School-based screening and individual assessment of children and adolescents with the SIQ-JR should be viewed as a viable and important role for school psychologists and one that will greatly assist in the identification of youngsters at-risk for future suicidal behaviors.

The evaluation of suicidality in adolescents is an important activity for school psychologists given the extent to which youngsters in school settings manifest suicidal behaviors (Reynolds & Mazza, 1994). Because schools are often the first line for the identification of such potentially life-threatening behaviors, school psychologists and other school-based professionals need to be cognizant of measures and procedures for the assessment of suicidal behaviors. To ensure the accuracy of assessment of suicidality, measures used for screening or individual assessment must demonstrate adequate levels of reliability and validity. The results of this study provide support for the reliability and validity of the SIQ-JR as a measure of suicidal ideation with children and young adolescents. Results of this and other studies conducted with the SIQ-JR (Keane et al., 1996; King et al., 1990; Reynolds, 1988) provide strong evidence that the SIQ-JR is a psychometrically sound measure and is useful for the evaluation of suicidal ideation in young people.

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William M. Reynolds, PhD, is a Professor of Educational Psychology and Special Education and Coordinator of the School Psychology program at the University of British Columbia. His research interests include the assessment and study of depression and suicidal behavior in children and adolescents, the study of exposure to violence in adolescents, assessment of psychopathology, and interventions for depression in children and adolescents.

James J. Mazza, PhD, is an Assistant Professor of Educational Psychology and a member of the School Psychology program faculty at the University of Washington, Seattle. His research interests include the study of youth and exposure to violence and suicidal behavior in adolescents.